

Trend Study 25C-27-03

Study site name: Poison Creek Bench.

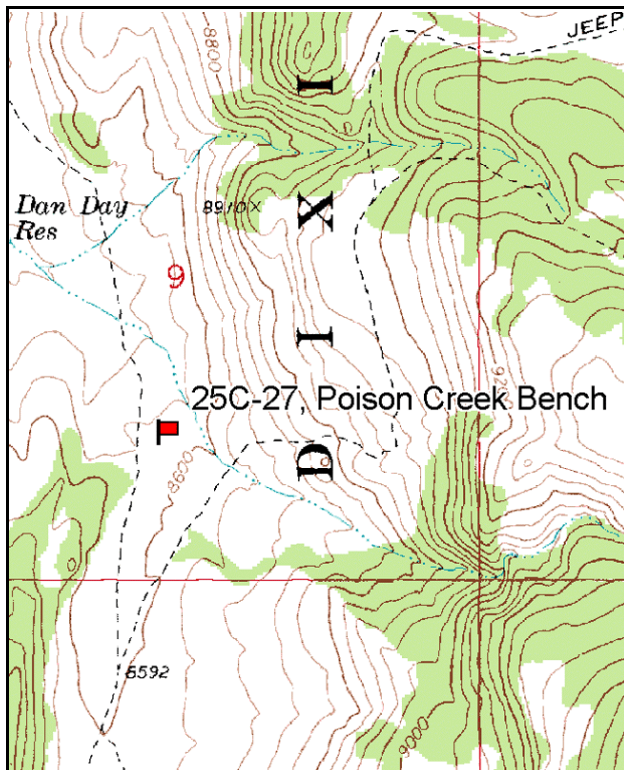
Vegetation type: Basin Big Sagebrush.

Compass bearing: frequency baseline 180 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line4 (71ft). Rebar: belt 3 on 2ft.

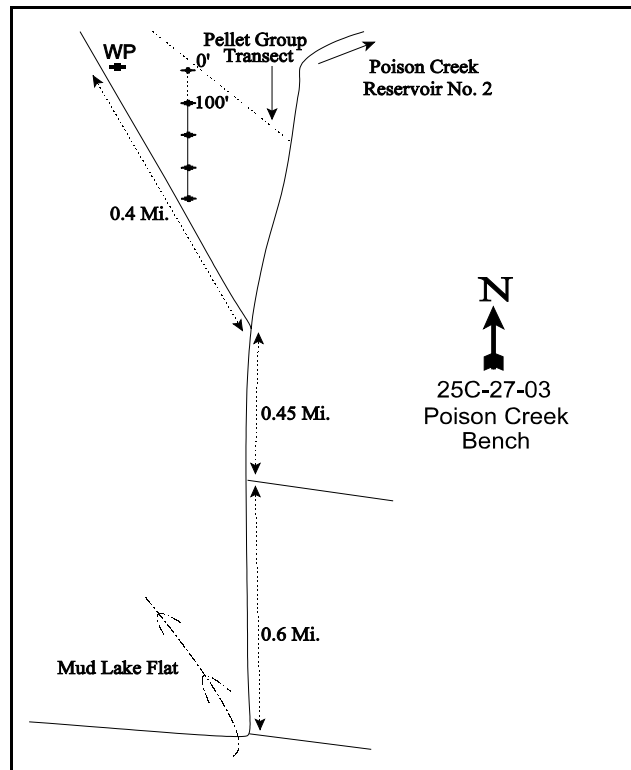
LOCATION DESCRIPTION

From the Center Creek study site (25C-25), continue north on the main road for 2.3 miles to the Mud Lake/Pacer Lake fork. Continue straight on the main road for 0.4 miles to a fork near an intermittent stream and turn right. This area can also be reached by coming from the north along the Poison Creek and Mud Lake roads. Drive 0.6 miles to a fork. Proceed straight through the fork for 0.45 miles to another fork. Bear left and proceed 0.4 miles to the study site, identified by a witness post on the right side of the road. The 0-foot baseline stake is about 30 paces east of the witness post. The 2-foot metal fencepost has a browse tag, #9001, attached.



Map Name: Antimony

Township 32S, Range 1W, Section 9



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4209789 N, 420665 E

DISCUSSION

Poison Creek Bench - Trend Study No. 25C-27

The Poison Creek Bench trend study samples high elevation winter range on the west side of the unit which is probably used more by big game as transitional and summer range. The bench where the study is located is dominated by mountain big sagebrush. Surrounding ridges support aspen, Rocky Mountain juniper, and ponderosa pine. The bench slopes gently (1-2%) to the west-northwest at an elevation of 8,600 feet. After the reading in 1994, the area was part of a prescribed burn. Pellet group data from 1998 estimated 11 deer, 1 elk, and 11 cow days use/acre (27 ddu/ha, 2 edu/ha, and 27 cdu/ha). Most of the deer pellet groups appeared fresh. Pellet group data from 2003 estimated 17 deer, 8 elk, and 33 cow days use/acre (41 ddu/ha, 20 edu/ha, and 81 cdu/ha). Most of the deer and elk use appeared to be from spring and early summer. Cattle use was from the previous summer (2002).

Soil at the site is very rocky on the surface and in the profile. Effective rooting depth is estimated at just over 13 inches. Texture is a sandy clay loam which is moderately acidic (pH 6.0). There is little bare ground exposed due to the abundance of vegetation and litter cover. The small areas that are exposed have a protective covering of pavement. Overall, the hazard of erosion is minimal.

Ten browse species occurred on the site prior to the prescribed burn which occurred after the 1994 reading. Shrubs included a dense stand of vigorous mountain big sagebrush. Data from the density plots taken in 1987 and 1991 estimated a stand of around 8,300 plants/acre. During the 1994 reading, a total of 6,760 sagebrush plants/acre were estimated. Most of the decrease in density was the result of the much larger sample taken in 1994, which gives much better population estimates for browse species. Young recruitment was good and seedling sagebrush were abundant. Utilization was moderate to heavy and percent decadence moderate. After the prescribed burn, density of sagebrush was estimated at 1,280 plants/acre in 1998. Thirty-eight percent of the stand was composed of young plants, indicating an expanding population. Sagebrush density increased 48% in 2003 to 2,460 plants/acre. No seedlings were encountered and young plants were rare. Use was mostly light and vigor normal on most plants.

The less common but more preferred bitterbrush had a relatively stable population between 1987 and 1991 of about 1,400 plants/acre. They showed heavier use than sagebrush with 70% of the large, bushy plants displaying heavily hedging in 1987. In 1991, only 26% of the shrubs were heavily hedged, however, nearly half displayed poor vigor and decadence was extremely high at 83%. By 1994, density was estimated at 920 plants/acre. Some of the change is due to the larger sample used in 1994. After the prescribed burn, nearly all of the bitterbrush was eliminated. Density in 1998 was estimated at only 40 young plants/acre. By 2003, bitterbrush density increased to 120 plants/acre. Use was moderate to heavy but vigor good and decadence low.

Parry rabbitbrush was fairly common in 1987 with a high proportion being seedlings and young. These plants appeared to be unutilized. Density remained stable until 1994 but use was heavier. No Parry rabbitbrush was sampled in 1998 but nearly 1,200 plants/acre were estimated in 2003. Use was light, vigor good, and decadence low. Stickyleaf low rabbitbrush was moderately abundant prior to the prescribed burn at 1,920 plants/acre in 1994. Density increased slightly in 1998 to 2,520 plants/acre and remained stable in 2003.

The herbaceous understory was quite diverse and productive even before the fire. Prior to the fire, the most abundant grasses included Letterman needlegrass, bottlebrush squirreltail, mutton bluegrass, a sedge, and blue grama. After the fire, production of perennial grasses doubled, but composition remained similar. The most common species include a sedge (*Carex* species) which provided 49% of the grass cover in 1998 and 2003. Blue grama, mutton bluegrass, bottlebrush squirreltail, needle-and-thread and Letterman needlegrass are also common. It is not known if the site was seeded after the fire, but crested wheatgrass and intermediate wheatgrass were encountered in one quadrat in 1998. Forbs are especially diverse. Twenty-eight species were identified on the transect in 1994. As with the grasses, utilization was very light. Only the tall

narrowleaf paintbrush, a few penstemon, and buckwheat showed any signs of use. Composition remained similar after the fire with 30 species classified in 1998, including many preferred and valuable as forage. The most common species include Indian paintbrush, redroot and sulfur eriogonum, Utah deervetch, silvery lupine, and Uinta groundsel. Sum of nested frequency of forbs had been declining steadily since 1987, but rebounded after the burn. Production also increased dramatically from 3% cover in 1994 to 16% by 1998. Production declined in 2003 to 6% cover which is related to drought conditions.

1987 APPARENT TREND ASSESSMENT

This site samples a high elevation winter or summer/transitional range which contains a thick stand of mountain big sagebrush. Soil conditions are good with abundant protective ground cover to prevent erosion. The shrub composition is diverse but totally dominated by mountain big sagebrush. Density appears to be at carrying capacity with adequate seedlings and young to maintain the stand. The more preferred bitterbrush also appears stable with 70% of the population displaying heavy use. Vigor is good and percent decadence marginally high at 20%. The herbaceous understory is abundant and diverse but limited by the thick sagebrush overstory.

1991 TREND ASSESSMENT

Basic cover features are almost the same except for the decline in vegetative basal cover which dropped from 12% to 8%. Rock-pavement cover has not really changed (39% to 40%) and litter cover has only increased slightly (44% to 45%). The most critical parameter, percent bare ground, only changed from 5% to 7%. Percent bare ground is still very low when compared to most sites. Trend for soil is stable. The two key browse species for the site are mountain big sagebrush and antelope bitterbrush. The mountain big sagebrush population has not shown any significant changes since 1987. It decreased by less than 1%. Rate of decadency has risen from 22% to 37%. This should be monitored closely to see if any significant losses should occur in the future. This rate of decadency should be expected with such a high density (8,332 plants/acre) in association with the extended drought we have been in since 1988. Antelope bitterbrush has actually experienced a 13% increase in it's numbers (1,332 to 1,532), but it too has demonstrated increases in percent decadence (20% to 83%). A high rate of decadence for bitterbrush has been found on many sites throughout Utah and would be expected to decrease with an end to this drought. Trend for key browse is stable, but could decline depending on future trends in decadence. The herbaceous understory is a little more difficult to determine since the grasses are slightly increasing while the forbs are declining. Since this area is considered a summer range for big game, the forb component is weighted more heavily, making the trend slightly down at this time.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - down slightly (2)

1994 TREND ASSESSMENT

Ground cover characteristics are similar to those of 1987, however percent bare ground has steadily increased from 5% in 1987 to 9% by 1994, and pavement cover declined. The trend for soil is still stable due to the abundance of herbaceous vegetation. Percent bare ground will likely decline with the return of normal precipitation patterns. Trend for browse is up slightly. Density of mountain big sagebrush declined 19% due primarily to a reduction in the number of young and decadent plants. Density of mature plants increased from 3,400 to 4,220 plants/acre. Percent decadence has declined from 37% to 21%. Trend for the other key species, antelope bitterbrush, is up due to decreased decadence, improved vigor, and a gradual increase in density. However, biotic and reproductive potentials are low. Trend for the herbaceous understory is down slightly due to declining sum of nested frequencies of forbs and grasses. Nested frequencies of forbs declined 40% while those of grasses declined nearly 17%.

TREND ASSESSMENT

soil - stable (3)

browse - up slightly (4)

herbaceous understory - down slightly (2)

1998 TREND ASSESSMENT

Trend for soil is considered stable. Percent bare ground increased from 9% to 14% and litter declined from 44% to 30% due to the fire. However, vegetation cover increased and herbaceous cover currently provides 87% of that cover. Trend for browse is down due to the fire. Some sagebrush appears to have survived the fire and the current population density is estimated at 1,280 plants/acre. Young plants account for 36% of the population. Most of the bitterbrush appear to have been eliminated and only 40 young plants/acre remain on the site. The increaser, stickyleaf low rabbitbrush, has increased 24% since 1994. Trend for the herbaceous understory is up. Sum of nested frequency of grasses and forbs has increased. Production has also increased especially for forbs which are an important component of big game spring range. Pellet group data suggest that this area is currently used more in the spring and summer than in winter.

TREND ASSESSMENT

soil - stable (3)

browse - down due to the fire (1)

herbaceous understory - up (5)

2003 TREND ASSESSMENT

Trend for soil remains stable. Vegetation cover remains high and cover of bare ground has declined to only 10%. Protective ground cover is abundant and erosion is not a problem on this site. Trend for browse is up. Density of mountain big sagebrush increased 48% and bitterbrush increased 67% from 40 to 120 plants/acre. Use was mostly light on sagebrush, vigor good, and percent decadence low. Bitterbrush is moderately to heavily hedged but has good vigor and low decadence. Seedling and young recruitment is nonexistent on bitterbrush and poor on sagebrush. However, this should rebound with a return to normal precipitation patterns. Trend for the herbaceous understory is mixed. Sum of nested frequency of perennial grasses increased slightly while sum of nested frequency of perennial forbs declined 44%. Average cover of perennial grasses also increased slightly but cover of perennial forbs dropped 3 fold. Trend for the herbaceous understory is considered slightly down.

TREND ASSESSMENT

soil - stable (3)

browse - up (5)

herbaceous understory - down slightly (2)

HERBACEOUS TRENDS --

Management unit 25C, Study no: 27

Type	Species	Nested Frequency					Average Cover %		
		'87	'91	'94	'98	'03	'94	'98	'03
G	Agropyron cristatum	-	-	-	3	-	-	.03	-
G	Agropyron intermedium	-	-	-	1	-	-	.00	-
G	Agropyron spicatum	-	-	-	-	8	-	-	.04
G	Bouteloua gracilis	_{ab} 64	_b 73	_a 37	_a 33	_{ab} 45	1.07	1.01	2.07
G	Bromus anomalus	-	-	-	-	2	-	-	.00
G	Bromus inermis	8	-	-	-	-	-	-	-
G	Bromus japonicus (a)	-	-	-	-	-	-	.00	-
G	Carex spp.	_a 36	_a 48	_b 130	_c 175	_c 183	2.08	11.49	12.11
G	Koeleria cristata	_{ab} 6	_b 9	_b 14	_{ab} 5	_a -	.10	.06	-
G	Poa fendleriana	_b 84	_{ab} 69	_{ab} 81	_{ab} 55	_a 29	2.15	1.56	.38
G	Poa secunda	-	-	-	-	1	-	-	.00
G	Sitanion hystrix	_c 160	_c 158	_a 76	_{ab} 100	_{bc} 131	.78	2.99	3.66
G	Stipa columbiana	_a -	_a -	_a -	_b 24	_a 3	-	.95	.03
G	Stipa comata	_a -	_b 35	_a 8	_b 59	_c 89	.36	2.41	3.59
G	Stipa lettermani	_b 147	_b 149	_a 106	_a 82	_a 81	3.65	2.75	2.70
Total for Annual Grasses		0	0	0	0	0	0	0.00	0
Total for Perennial Grasses		505	541	452	537	572	10.21	23.27	24.62
Total for Grasses		505	541	452	537	572	10.21	23.28	24.62
F	Agoseris glauca	-	1	-	-	11	-	-	.07
F	Antennaria parvifolia	_c 25	_{bc} 19	_a -	_{ab} 5	_a -	-	.06	-
F	Androsace septentrionalis (a)	-	-	3	30	8	.01	.28	.01
F	Arabis demissa	_c 53	_b 27	_{ab} 11	_{ab} 14	_a 2	.02	.08	.01
F	Artemisia ludoviciana	2	-	1	1	3	.00	.03	.38
F	Astragalus convallarius	13	8	9	17	5	.10	.24	.24
F	Astragalus spp.	3	-	4	-	-	.01	-	-
F	Castilleja linariaefolia	_c 69	_b 33	_{ab} 24	_b 36	_a 4	.32	1.11	.06
F	Chaenactis douglasii	_b 63	_a 8	_a 2	_a 10	_a 3	.01	.07	.03
F	Chenopodium leptophyllum(a)	-	-	_a -	_a -	_b 17	-	-	.21
F	Crepis acuminata	-	3	-	5	-	-	.04	.00
F	Cryptantha flavoculata	_a 5	_b 20	_a 5	_a -	_a -	.01	-	-
F	Cruciferae	-	2	-	-	-	-	-	-
F	Descurainia pinnata (a)	-	-	-	8	1	-	.04	.00
F	Erigeron eatonii	_b 72	_b 79	_a 11	_a 26	_a 15	.05	.49	.06
F	Erigeron pumilus	_b 37	_{ab} 32	_a 16	_{ab} 22	_{ab} 37	.14	.43	.42
F	Eriogonum racemosum	_b 67	_b 68	_a 38	_{ab} 37	_{ab} 54	.21	.72	.93
F	Eriogonum umbellatum	_b 35	_{ab} 38	_{ab} 29	_a 12	_{ab} 14	.25	.58	.45

T y p e	Species	Nested Frequency					Average Cover %		
		'87	'91	'94	'98	'03	'94	'98	'03
F	Gayophytum ramosissimum(a)	-	-	-	-	26	-	-	.12
F	Gilia spp. (a)	_b 23	_a -	_a 5	_a -	_a -	.01	-	-
F	Hymenoxys richardsonii	5	7	3	3	3	.03	.15	.18
F	Ipomopsis aggregata	1	4	5	7	-	.02	.36	-
F	Lappula occidentalis (a)	-	-	-	-	15	-	-	.40
F	Linum lewisii	6	7	2	3	-	.00	.04	-
F	Lotus utahensis	_c 118	_{ab} 28	_b 60	_{ab} 33	_a 8	.22	1.35	.22
F	Lupinus argenteus	_c 101	_b 59	_{bc} 72	_b 63	_a 26	1.46	6.75	1.32
F	Lychnis drummondii	_a -	_b 12	_a -	_{ab} 8	_a -	-	.06	-
F	Lygodesmia spinosa	10	13	2	6	4	.06	.09	.18
F	Machaeranthera canescens	_b 26	_{ab} 13	_{ab} 7	_a 1	_a 4	.07	.03	.03
F	Microsteris gracilis (a)	-	-	-	2	5	-	.03	.01
F	Oenothera pallida	-	-	-	-	1	-	-	.03
F	Orthocarpus luteus (a)	-	-	3	-	1	.00	-	.03
F	Penstemon comarrhenus	_b 17	_{ab} 6	_a 3	_{ab} 16	_a 5	.00	.05	.07
F	Petradoria pumila	2	3	2	1	1	.03	.00	.00
F	Phlox longifolia	_b 67	_b 65	_a 16	_a 12	_a 17	.04	.06	.11
F	Potentilla concinna	6	3	2	1	3	.03	.01	.03
F	Senecio multilobatus	_c 108	_a 23	_a 15	_b 73	_a 14	.04	2.23	.06
F	Taraxacum officinale	7	4	-	5	1	-	.05	.00
F	Tragopogon dubius	-	-	-	-	-	-	-	.01
F	Unknown forb-perennial	2	-	-	-	-	-	-	-
F	Veronica biloba (a)	-	-	-	3	-	-	.15	-
Total for Annual Forbs		23	0	11	43	73	0.02	0.50	0.81
Total for Perennial Forbs		920	585	339	417	235	3.19	15.13	4.97
Total for Forbs		943	585	350	460	308	3.22	15.63	5.78

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Management unit 25C, Study no: 27

Type	Species	Strip Frequency			Average Cover %		
		'94	'98	'03	'94	'98	'03
B	Artemisia nova	7	0	1	1.84	-	-
B	Artemisia tridentata vaseyana	98	23	56	20.42	2.53	7.54
B	Cercocarpus ledifolius	0	1	0	-	-	-
B	Chrysothamnus parryi	19	0	32	.20	-	1.02
B	Chrysothamnus viscidiflorus viscidiflorus	47	58	61	.46	2.99	7.39
B	Gutierrezia sarothrae	4	6	8	-	.01	.18
B	Juniperus scopulorum	0	0	0	.15	-	-
B	Leptodactylon pungens	13	2	11	.36	.00	.01
B	Opuntia spp.	4	0	0	.05	-	-
B	Pediocactus simpsonii	0	10	1	-	.03	-
B	Purshia tridentata	32	2	6	8.53	.18	.15
B	Symphoricarpos oreophilus	1	0	0	-	-	-
B	Tetradymia canescens	3	6	1	.00	.00	.15
Total for Browse		228	108	177	32.02	5.76	16.45

CANOPY COVER, LINE INTERCEPT --

Management unit 25C, Study no: 27

Species	Percent Cover '03
Artemisia tridentata vaseyana	8.53
Chrysothamnus parryi	1.73
Chrysothamnus viscidiflorus viscidiflorus	7.36
Gutierrezia sarothrae	.06
Purshia tridentata	.75

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 25C, Study no: 27

Species	Average leader growth (in) '03
Artemisia tridentata vaseyana	2.0
Purshia tridentata	3.6

BASIC COVER --

Management unit 25C, Study no: 27

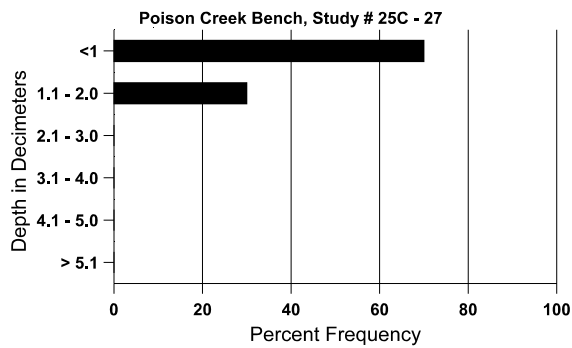
Cover Type	Average Cover %				
	'87	'91	'94	'98	'03
Vegetation	11.75	7.50	42.77	51.95	49.54
Rock	20.50	13.75	18.45	9.80	13.75
Pavement	18.75	26.50	3.72	21.64	20.04
Litter	44.25	45.00	43.79	30.38	22.11
Cryptogams	.25	.25	.12	.01	.00
Bare Ground	4.50	7.00	8.98	13.82	10.18

SOIL ANALYSIS DATA --

Management unit 25C, Study no: 27, Study Name: Poison Creek Bench

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
13.1	61.5 (7.5)	6.0	54.0	27.4	18.6	5.4	35.2	313.6	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 25C, Study no: 27

Type	Quadrat Frequency		
	'94	'98	'03
Rabbit	21	9	3
Elk	-	1	2
Deer	30	19	8
Cattle	5	3	15

Days use per acre (ha)	
'98	'03
-	-
1 (2)	8 (20)
11 (27)	17 (41)
11 (27)	33 (81)

BROWSE CHARACTERISTICS --
Management unit 25C, Study no: 27

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Artemisia nova											
87	0	-	-	-	-	-	0	0	0	0	-/-
91	0	-	-	-	-	-	0	0	0	0	-/-
94	520	-	-	280	240	80	23	0	46	42	6/18
98	0	-	-	-	-	-	0	0	0	0	-/-
03	20	-	-	20	-	-	100	0	0	0	-/-
Artemisia tridentata vaseyana											
87	8398	1800	2066	4466	1866	-	21	10	22	2	28/24
91	8332	800	1866	3400	3066	-	31	2	37	8	25/24
94	6760	1720	1120	4220	1420	360	22	2	21	5	24/34
98	1280	480	460	520	300	3960	20	0	23	3	15/23
03	2460	-	60	2200	200	240	15	0	8	2	18/28
Cercocarpus ledifolius											
87	0	-	-	-	-	-	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	-	0	-/-
94	0	-	-	-	-	-	0	0	-	0	-/-
98	40	-	40	-	-	-	0	0	-	0	-/-
03	0	-	-	-	-	-	0	0	-	0	-/-
Chrysothamnus parryi											
87	732	200	466	66	200	-	0	0	27	0	8/6
91	799	-	266	200	333	-	17	33	42	25	7/7
94	740	20	20	720	-	-	19	14	0	0	8/5
98	0	-	-	-	-	-	0	0	0	0	-/-
03	1180	-	-	1160	20	-	5	2	2	0	8/9
Chrysothamnus viscidiflorus viscidiflorus											
87	666	133	200	466	-	-	0	0	0	0	15/18
91	999	133	200	666	133	-	33	7	13	7	6/6
94	1920	-	140	1720	60	-	6	8	3	0	12/13
98	2520	60	500	1980	40	-	0	0	2	.79	13/16
03	2260	-	20	2220	20	-	.88	0	1	0	15/22
Gutierrezia sarothrae											
87	0	-	-	-	-	-	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	-	0	-/-
94	120	-	-	120	-	-	0	0	-	0	8/7
98	200	60	80	120	-	-	0	0	-	0	8/9
03	520	20	-	520	-	-	0	0	-	0	5/4

		Age class distribution (plants per acre)					Utilization				
Y e a r	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Juniperus osteosperma											
87	0	-	-	-	-	-	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	-	0	-/-
94	0	-	-	-	-	-	0	0	-	0	-/-
98	0	-	-	-	-	20	0	0	-	0	-/-
03	0	-	-	-	-	-	0	0	-	0	-/-
Leptodactylon pungens											
87	0	-	-	-	-	-	0	0	0	0	-/-
91	199	-	133	66	-	-	0	0	0	0	9/10
94	740	-	-	740	-	-	0	0	0	0	5/8
98	80	-	-	-	80	40	0	0	100	0	9/11
03	360	-	-	360	-	20	0	0	0	0	5/7
Opuntia spp.											
87	0	-	-	-	-	-	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	-	0	-/-
94	80	-	-	80	-	-	0	0	-	0	2/60
98	0	-	-	-	-	-	0	0	-	0	-/-
03	0	-	-	-	-	-	0	0	-	0	-/-
Pediocactus simpsonii											
87	0	-	-	-	-	-	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	-	0	-/-
94	0	-	-	-	-	-	0	0	-	0	-/-
98	240	-	60	180	-	-	0	0	-	0	2/3
03	20	-	-	20	-	-	0	0	-	0	1/3
Purshia tridentata											
87	1332	133	133	933	266	-	25	70	20	0	23/29
91	1532	66	66	200	1266	-	26	26	83	48	11/14
94	920	40	100	420	400	40	50	9	43	0	28/59
98	40	20	40	-	-	160	0	0	0	0	29/47
03	120	-	-	100	20	-	33	50	17	0	18/28
Symphoricarpos oreophilus											
87	0	-	-	-	-	-	0	0	-	0	-/-
91	0	-	-	-	-	-	0	0	-	0	-/-
94	20	-	-	20	-	-	0	0	-	0	10/11
98	0	-	-	-	-	-	0	0	-	0	13/36
03	0	-	-	-	-	-	0	0	-	0	15/27

		Age class distribution (plants per acre)					Utilization				
Y e a r	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Tetradymia canescens											
87	133	-	-	133	-	-	0	0	-	0	11/10
91	399	-	333	66	-	-	33	0	-	0	4/3
94	60	-	20	40	-	-	0	0	-	0	3/2
98	140	-	80	60	-	40	0	0	-	0	11/12
03	40	-	-	40	-	-	100	0	-	0	13/17